TABLE 6. CONDUCTIVITIES (k) AND CONDUCTANCES (C) OF BUILDING MATERIALS AND INSULATIONS

Tests Conducted at Armour Institute of Technology, by J. C. Peebles.[p] *Insulation Tests Based on Samples Submitted by Manufacturers*

MATERIAL	DESCRIPTION	DENSITY (LB. PER CU. FT.)	MEAN TEMP. (DEG. FAHR.)	CONDUCTIVITY[a] (k) OR CONDUCTANCE (C)
Aerocrete	Cellular concrete	40.0	75	1.06
Aerocrete	Cellular concrete	50.0	75	1.44
Aerocrete	Cellular concrete	60.0	75	1.80
Aerocrete	Cellular concrete	70.0	75	2.18
Arborite	Rigid insulation made from wood pulp	15.2	....	0.33
Asbestos shingles		65.0	75	6.00[b]
Asphalt shingles		70.0	75	6.50[b]
Balsam Wool[h]	Chemically treated wood fibre between plain paper	3.62	70	0.25
Beaver Fibre Wallboard	Commercial thickness 3/16 in.	......	....	0.50
Calicel	Granular fill insulation made from combined silicate of lime and alumina	4.2	72	0.24
Celotex	Rigid insulation made from sugar cane fibre	13.5	70	0.33
Certainteed Insulating Board	Commercial thickness 7/16 in.	25.9	....	0.39
Cincrete Block, 8 in. Hollow	Treated cinder aggregate concrete	......	....	0.33[b]
Concrete	Stone	145.0	75	6.30
Concrete	Cinder	110.0	75	5.20
Dry Zero Blanket[h]	Pliable slab form of insulation made from ceiba fibres	1.9	75	0.23
Dry Zero Blanket[h]	Pliable slab form of insulation made from ceiba fibres	1.6	75	0.24
Dry Zero Blanket[h]	Pliable slab form of insulation made from ceiba fibres	1.5	75	0.24
Flax-li-num[h]	Flax fibre	12.1	70	0.30
Homasote "A" Building Board	Made from wood and other vegetable *fibres chemically treated*	22.2	75	0.38
Inso Board	Rigid insulation made from wheat straw	17.0	68	0.33
Insulite	Rigid insulation made from wood pulp	16.5	70	0.34
Keystone Hair[h]	Hair felt between layers of paper; 1/4 in. thick	11.0	75	0.25
Lith	Rock wool, flax and straw pulp with binder	14.5	75	0.38
Linoboard	Slab form of insulation made from rock wool and vegetable fibres	9.9	72	0.296
		11.5	72	0.311
Maftex	Rigid insulation made from licorice roots	16.1	81	0.34
Maizewood	Rigid insulation made from cornstalks	15.0	70.5	0.325
Maple Flooring	Across grain	40.0	75	1.20
Masonite	Rigid insulation made from exploded wood fibre	19.8	75	0.33
Plaster Board	Gypsum between layers of heavy paper	62.8	70	1.41
Pyrocell or Insulex	Cellular gypsum—dry	30.0	75	0.92
Pyrocell or Insulex	Cellular gypsum—dry	24.0	75	0.74
Pyrocell or Insulex	Cellular gypsum—dry	18.0	75	0.57
Pyrocell or Insulex	Cellular gypsum—dry	12.0	75	0.40
Roofing	Composition or prepared	......	75	6.50[b]
Sprayo-Flake	Shredded paper with silica binder	4.5	....	0.25
Temlok	Rigid Insulation made from wood fiber	15.0	70	0.33
Thermatex	Rigid Insulation made from wood fiber	8.5	72	0.294
Thermax	Made from shredded wood and cement	24.2	72	0.46
Thermofil	Dry, fluffy, flaked gypsum	24.0	75	0.48
Thermofil	Dry, fluffy, flaked gypsum	18.0	75	0.34
Thermasote "A" Insulating Board	Made from wood fibre, chemically treated	18.6	75	0.34
Torfoleum	Peat moss compressed into sheet form	11.0	70	0.26
Weatherwood	Rigid insulation made from hard wood fibres	15.2	70	0.32
Wood Lath and Plaster[k]	Lime plaster	......	75	2.0[b]
Yellow Pine	Across grain	......	....	1.00

[a]In addition to the conductivity values for the authorities listed, considerable work of importance pertaining to the heat transmission of various types of construction and materials has been done by the late Prof. John R. Allen and the late Prof. A. J. Wood of the Engineering Experiment Station of Pennsylvania State College.

[b]For thickness stated or used in construction, not per 1 in. thickness.

[h]Not compressed.

[k]Thickness of lime plaster and wood lath from back of lath to face of plaster, about 7/8 in.

[p]See Chapter LX, by Chas. H. Herter of the Report of the Insulation Committee, *A. S. R. E.*, Annual Meeting, 1922, Revised to 1924, entitled, Heat Transmission of Insulating Materials for a more comprehensive collection of heat transmission data relating to building and insulating materials.

example, the value of U for a 1 in. yellow pine floor (actual thickness, 25/32 in.) placed directly on 5 in. concrete on the ground, is determined as follows:

$$U = \frac{1}{\frac{1}{1.34} + \frac{0.781}{1.00} + \frac{5.0}{8.30}} = 0.472 \text{ Btu per hour per square foot}$$

per degree difference in temperature between the ground and the air immediately above the floor.

The thicknesses upon which the coefficients in Tables 9 to 33, inclusive, are based, are as follows:

Brick veneer	4 in.
Plaster and metal lath	3/4 in.
Plaster (on wood lath, plasterboard, rigid insulation, board form, or corkboard)	1/2 in.
Slate (Roofing)	1/2 in.
Stucco on wire mesh reinforcing	1 in.
Tar and gravel or slag-surfaced built-up roofing	3/8 in.
Wood shingles (average thickness)	5/8 in.
Wood siding or clapboard (average thickness)	5/8 in.
1-in. Lumber (S-2-S)	25/32 in.
1 1/2-in. Lumber (S-2-S)	1 5/16 in.
2-in. Lumber (S-2-S)	1 5/8 in.
2 1/2-in. Lumber (S-2-S)	2 1/8 in.
3-in. Lumber (S-2-S)	2 5/8 in.
4-in. Lumber (S-2-S)	3 5/8 in.
Finish flooring (Maple or Oak)	13/16 in.

TABLE 7. CONDUCTIVITIES (k) AND CONDUCTANCES (C) OF BUILDING MATERIALS AND INSULATIONS

Based on Tests Conducted at the University of Minnesota, By F. B. Rowley[p]

MATERIAL	DESCRIPTION	DENSITY (LB. PER CU. FT.)	MEAN TEMP. (DEG. FAHR.)	CONDUCTIVITY[a] (k) OR CONDUCTANCE (C)
Concrete	Stone 1-2-4 mix	143.0	68.8	9.46
Dry Zero	Pliable slab form of insulation made from ceiba fibres	......	......	0.23
Fir sheathing and building paper		......	30.0	0.71[b]
Fir sheathing, building paper and pine lap siding		......	20.0	0.50[b]
Fir sheathing, building paper and stucco		......	20.0	0.82[b]
Gypsum Tile	Solid	51.8	69.9	1.66
Gypsum Tile	Solid	75.6	75.9	2.96
Gypsum Fibre Concrete	87 1/2% gypsum and 12 1/2% wood chips	51.2	74.4	1.66
Lath and 3/8 in. Plaster	Total thickness 3/4 in.	......	70.0	2.50[b]
Masonite	Rigid insulation made from exploded wood fibre	17.9	77.6	0.32
Pine lap siding and building paper	Lap siding 4 in. wide	......	15.5	0.85[b]
Plaster	Thickness 3/8 in.	......	73.0	8.8[b]
Sheet Rock Pyrofill Roofing, 2 1/2 in. thick	Plaster board, gypsum fibre concrete and 3-ply roof covering	52.4	76.0	0.58[b]
Sprayo-Flake	Shredded paper with silica binder	5.9	61.1	0.28

[a]In addition to the conductivity values for the authorities listed, considerable work of importance pertaining to the heat transmission of various types of construction and materials has been done by the late Prof. John R. Allen and the late Prof. A. J. Wood of the Engineering Experiment Station of Pennsylvania State College.

[b]For thickness stated or used in construction, not per 1 in. thickness.

[p]See Chapter LX, by Chas. H. Herter of the Report of the Insulation Committee, *A. S. R. E.*, Annual Meeting, 1922, Revised to 1924, entitled, Heat Transmission of Insulating Materials for a more comprehensive collection of heat transmission data relating to building and insulating materials.